DMON Disk Monitor Requirements

DMON-M
DMON-S

Fits on Kemitron MZB-3 Card which must be set up for 2K EPROMs (2716/2516)
Power on Jump to page "E" (NO WAIT STATES).
On-board Firmware (EPROM) address page "E".

RAM starting at ØØØØ.
FDC-1 addressed at Ports $8Ø_H$ onwards.

DMON-M

VDU-2K @ $FØØØ_H$ onwards 24 lines of 64 chars.
Parallel Keyboard Interface LKP-1 @ $4Ø_H$

DMON-S

Console (ie. Serial 80×24 VDU + Serial Keyboard)
Status Port $ØØ_H$ Data Port $Ø1_H$

Also available to special order: —

DMON-H

VDU Serial 80 columns × 24 rows Ports $ØØ_H$, $Ø1_H$
Keyboard Parallel - Port $4Ø_H$

The Monitor Commands

There are seven basic commands, four of which consist of a single letter, the other three are two letter commands. In the description which follows, xxxx, yyyy, and zzzz stand for four-digit hexadecimal addresses, vv and ww are two-digit hexadecimal numbers, and mm,nn and oo stand for a decimal numbers in the range 0..255. The commands are typed on the terminal exactly as shown, terminated by a <CR> (Carriage Return) character. On most terminals the <CR> key is marked either 'RETURN' , 'CR' , or 'ENTER'.

The GO command.

G xxxx — Start execution of whatever program happens to be located at address xxxx. In order to regain control, that program must terminate with a jump to location 0E000H, otherwise the effect of terminating the program is unpredictable.

The BOOT command.

B — This 'boots up' whichever systems program happens to be on tracks 0 and 1 of the disk in Drive 0. The effect is as follows: The computer reads the first byte from the first sector on track 0, and uses it as the page address for the remainder. E.g. if the first byte happens to be 0D (hex), then this byte will be loaded into address 0D00 of the computer, with the remainder of the first sector loaded into subsequent memory locations. After loading the first sector, control is transferred to the second byte of the sector just read, i.e. to address 0D01 in the above example. Normally this first sector contains the loader program for the operating system, the remainder of which will subsequently be loaded and the executed.

The Port Command

P vv
P vv ww — The two version of the command are used for input from or output to one of the ports of the computer. The first command will read from port vv and display the result in both hexadecimal and binary notation, while the second command will output the hexadecimal byte ww to port vv.

The Communication command

K

Following this command, the computer acts as an intelligent terminal of some other computer. The command is available only in the Serial versions of the monitor, and assumes that a VDU is connected to ports 0 and 1 and the remote computer to ports 2 and 3, both via the UART's on the Interak SIO Board. For communication with a remote computer the connections of pins 2 and 3 of one of the 25-way D-type connectors must be reversed, otherwise both computers will transmit via pin 2, and both attempt to receive via pin 3, with the result that nothing at all will happen. Reversal is not necessary if communication is via a Modem and telephone lines.

Every character typed at the keyboard will be transmitted to the remote computer, and appears on the screen only after the remote computer has echoed it back.

ASCII and HEX files can be received from the remote computer, and stored in memory, by typing a command which would normally make the remote computer display either a hex dump on the screen, or display ASCII text. This command should be terminated by pressing either CNTL A or CNTL D instead of <CR>. Use CNTL A when an ASCII file is transmitted, and CNTL D for a Hex Dump. At the end of the transmission press ESC, and the computer displays the next available memory address. The file received is stored in memory locations 0100 up to the address shown, and can now be saved on disk, either by the DW command (see later), or after re-entering your main operating system.

The Set and Select Commands

SP vv ww mm nn oo
SD nn mm oo xxxx

These three commands set parameters or select options for the subsequent correct operation of commands to follow.

The first command is virtually compulsory at the beginning of every session. It defines for the computer the port number (vv) which carries the status signal from the printer, and it is assumed that the data port is the next following numerically. ww is a byte defining the configuration of the disk drive in use, bits 5,6, and 7 defining the stepping

rate, bit 3 is set to 1 for 8in drives, 0 for the smaller sizes, and bit 2 is set to 1 for single density disks, 0 for double density. Bits 0,1, and 4 must always be 0.

mm and nn are the number of sectors per side, and number of sectors per track. On a single-sided disk the two numbers will be the same, i.e. 15 for 8in disks and 10 for the smaller sizes. For double sided disks the second number is to be doubled. Finally oo is the track number after which write precompensation is to be applied. It is used on double density disks only, its value being 43 for 8in disks and for 80 track smaller sizes. For other (35 or 40 track) 5in disks its value should be 20.

The second command selects the drive number (nn), track number (mm) and sector number (oo) to be used as starting values for the next disk access; the xxxx parameter for this command selects the memory address from which to write to disk or to which to read from disk.

The Disk Commands

DR nn
DW nn

These two commands are used to read from or write to the disk, after drive, track, sector and memory address have been specified by the previous command. nn in each case is the number of 512-byte sectors to be transferred. At completion of the action five numbers are shown on the screen, E is the error indicator, its value will be 0 for a successful transfer. 1 indicates a CRC (check sum) error, 2 is either a hardware error or an attempt was made to access a non-existent track or sector, and 3 indicates an attempt to write to a write-protected disk.

The other four numbers are the drive, track, sector, and memory address which will be used for the next disk access unless changed by the SD or SM commands. The total number of sectors which can be read by a single command could be as large as 255, but in order to store this in memory, the computer would need at least 128 K bytes of memory!

The Memory Commands

MD xxxx yyyy — Displays, both in Hex and in ASCII the contents of memory locations xxxx to yyyy, 16 bytes per line.

ML xxxx — Successive memory locations, starting with address xxxx will be displayed. Pressing <CR> leaves the displayed byte unaltered, alternatively a two-digit hexadecimal number can be typed, terminated by <CR>, which will then replace the contents of the memory location. Instead of a hex number, an ASCII character can be typed, preceded by '.

Attempts to write to non-existent locations, or locations containing ROM will produce the error message 'Mem - xxxx', where xxxx is the location which is incapable of receiving data.

MM xxxx yyyy zzzz — Move the contents of memory locations xxxx to yyyy as a block to memory addresses starting at zzzz. Attempts to write to illegal locations again produces the error message 'Mem - xxxx'. Blocks which are moved to higher addresses must not overlap each other.

MF xxxx yyyy vv — Fill memory starting at address xxxx up to address yyyy with the byte vv.

MS xxxx yyyy vv
MS xxxx yyyy vv ww — Search the memory range from address xxxx up to address yyyy for any occurrances of the byte vv or occurances of the two successive bytes vv and ww, and display the corresponding addresses on the screen.